

TITOV, Ye. M.

Mbr., Ural Institute of Forestry, Sverdlovsk, - 1947 -

"The Chemical Characteristic of the Ural Sapropel," Dok. AN, 56, No. 7, 1947

TITOV, YE. M.

Titov, Ye. M. "On the chemical characteristics of Ural sapropel", Sbornik nauch. trudov (Ural'skiy lesotekhn. in-t), Moscow-Leningrad, 1948, p. 35-39.

SO: U-3261, 10 April 53, (Letopis 'Zhurnal 'nykh Statey, No. 11, 1949 ).

TITOV, YE. K.

Titov, Ye. K. "Carbon and nitrogen analysis in fuel by means of the 'Soviet-Scientist',  
Sbornik nauch. trudov (USSR Academy of Sciences. Proc.), Moscow-Leningrad, 1964, No. 1, p. 104.

SO: U-3261, 10 April 65, (Leningrad 'Energiya' Station, No. 11, 1964).

TITOV, Ya. M.

Chemical composition of the ashes of Ural sapropels and the formation of calcareous sapropels. Trudy Lab. zapr. otl. no.3:29-52 '49.

(MLBA 10:8)

1. Laboratoriya organicheskoy khimii Ural'skogo lesotekhnicheskogo instituta.

(Ural Mountain region--Sapropels)

11D

CA

Pigments of Ural sapropels. E. M. Tilov. *Trudy Lab. Sapropel. Oshskent Akad. Nauk S.S.S.R., Inst. Liza* 1950, No. 4, 29-39.—In several Ural lakes throughout the depth of their sapropelite deposits the pigments are a mixt. of carotenoids and fossil chlorophyll. The former consists of  $\beta$ -carotene in the main, or at least of close stereoisomers. In calciferous sapropels this can reach 3 mg./100 g., while in siliceous forms it reaches 2 mg./100 g. The pink sapropels owe the color to adsorbed carotenoids on mineral colloids, mainly  $\text{CaCO}_3$ . The chlorophyll arises from algae, in the course of decompn. of which the chlorophyll suffers hydrolysis and the formation of chlorophyllide which is stable for millenia, under anaerobic conditions in the lower layers. In Moltaevo Lake the sapropel layer on top of a peat layer contains no carotene but does contain a pigment that is not extd. with  $\text{C}_6\text{H}_6$ , but is extd. with  $\text{EtOH}$ ; it appears to be a deriv. of chlorophyll b. G. M. Kosolapoff

TITOV, Ye. M.

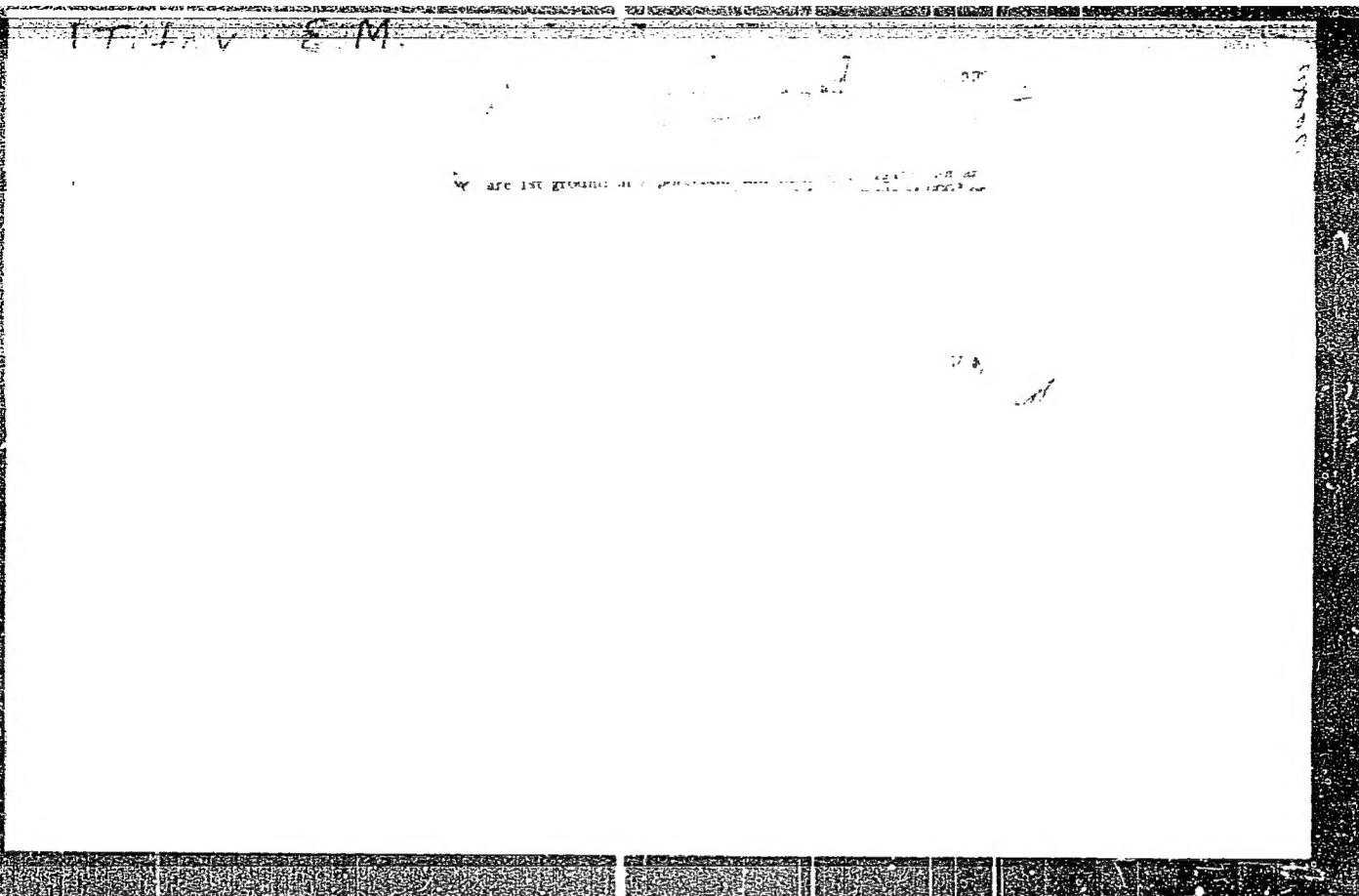
Ural Mountain Region - Sapropelites

Elementary composition of the organic mass of the Ural sapropels. Trudy Lab.sapr.otl.  
No. 5, 1951

Monthly List of Russian Accessions, Library of Congress, December 1952. Unclassified.

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APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001755910008-5"

TITOV, Y. M.

PA 36T75

USSR/Physics

Chromatographic Analysis

Absorption

Nov 1947

"Chromatographic Absorption Analysis under High Pressures," Ye. M. Titov, Laboratory of Organic Chemistry of the Ural Lumber Technical Institute, 52 pp

"Zavodskaya Laboratoriya" Vol XIII, No 11

General introduction to the subject of chromatographic analysis, discusses the techniques of chromatographic analysis, and describes some of the equipment used. The author describes a typical experiment of isolating the pigments from Ural sapropel, in which he used adsorption columns which had dimensions of 40 x 400 mm and 30 x 350 mm at pressures of 350-450 mm of mercury. He used potassium oxides or magnesium oxides as adsorbents.

LC

36T75



L 33271-66

ACC NR: AR6016193

SOURCE CODE: UR/0058/65/000/011/D025/D025

AUTHOR: Kovalev, I. P.; Titov, Ye. V. 39

TITLE: Infrared absorption spectra of natural derivatives of  $\alpha$  and  $\gamma$  pyrone B

SOURCE: Ref. zh. Fizika, Abs. 11D191

REF SOURCE: Tr. Komis. po spektroskopii. AN SSSR, t. 3, vyp. 1, 1964, 637-643

TOPIC TAGS: ir spectrum, absorption band, spectrum analysis, hydrogen bonding, chelate compound

ABSTRACT: The authors investigated the ir absorption spectra of 55 flavonoids, coumarins, and furocoumarins, and propose a classification of the frequencies in the 4000 - 650  $\text{cm}^{-1}$ . It is shown that spectroscopic identification of the derivatives of  $\alpha$  and  $\gamma$  pyrone by means of the frequencies and intensities of the absorption bands of the hydroxyl, carbonyl, and other groups is possible. The chelate hydrogen bond of the flavonoids, which plays an important role in the manifestation of their biological action, is investigated. Work is done on the preparation of a chart of ir spectra of the derivatives of  $\alpha$  and  $\gamma$  pyrone (standardization of the measurement of the spectrum, development of type of documentation). [Translation of abstract]

SUB CODE: 20, 07

Card 1/1 *dy*

TITOV, Ye.V.; LITVINENKO, L.M.; LEVCHENKO, N.F.; IZMAYLOV, N.A.

Band frequencies of H-N stretching vibrations and the  
reactivity of amines. Part 2: Polynuclear derivatives of aniline.  
Ukr. khim. zhur. 27 no.4:481-486 '61. (MIRA 14:7)

1. Khar'kovskiy gosudarstvennyy universitet.  
(Aniline--Spectra)

SHKODIN, A.M.; ALEKSANDROV, V.V.; SPIVAK, L.L.; VAYL', Ye.I.; CHERNYI, V.S.;  
TITOV, Ye.V.; IVANOVA, Ye.F.; KRUGLYAK, Yu.A.; RYBKIN, Yu.F.

Nikolai Arkad'evich Izmailov, 1907-1961. Ukr.khim.zhur. 28  
no.2:271-282 '62. (MIRA 15:3)  
(Izmailov, Nikolai Arkad'evich, 1907-1961)

KOVALEV, I.P.; TITOV, Ye.V.; CHERNOBAY, V.T.; KOMICSARENKO, N.F.

Infrared spectra of glucosides of the atrophantidin series.  
Ukr.khim.zhur. 31 no.5:513-516 '65.

(MIRA 18:12)

1. Khar'kovskiy nauchno-issledovatel'skiy khimiko-farmatsevticheskij  
institut. Submitted Dec. 6, 1963.

TITOV, Ye.V.

Effect of solvent on the OD line in Raman spectra of carboxylic acids and phenols. Uch. zap. KHGU 82:139-147 '57.

(MIRA 12:9)

(Raman effect) (Acids, Organic--Spectra) (Phenols--Spectra)

TITOV, Ye. V.: Master Chem Sci (diss) -- "The effect of solvent on the OD band in spectra of the combined diffusion of carboxylic acids and phenols". Khar'kov, 1958. 12 pp (Min Higher Educ Ukr SSR, Khar'kov Order of Labor Red Banner State U im A. M. Gor'kiy), 150 copies (KL, No 2, 1959, 118)

KOVALEV, I.P.; TITOV, Ye.V.

Infrared absorption spectra of natural compounds. Part 1:  
Flavonoids. Absorption bands of carbonyl and hydroxyl groups.  
Zhur. ob. khim. 33 no.5:1670-1676 My '63. (MIRA 16:6)

1. Khar'kovskiy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut.

(Flavonoids)

(Carbonyl group—Absorption spectra)

(Hydroxyl group—Absorption spectra)

KOVALEV, I.P.; PROKOPENKO, A.P.; TITOV, Ye.V.

Spectroscopic study of some unsaturated six-membered lactones.  
Ukr. khim. zhur. 29 no.7:740-743 '63. (MIRA 16:8)

1. Khar'kovskiy nauchno-isslovatel'skiy khimiko-farmatsevticheskiy  
institut.

(Lactones—Spectra)



TITOV, Yu.A., Cand Chem Sci — (diss) "Study of <sup>the</sup> ~~rule~~ structural direction of diene synthesis." Mos, 1959. 12 pp (Acad Sci USSR. Inst of Organic Chemistry in N.D. Zelinskiy). 150 copies (M, 38-59, 115)

15

5(3)

SOV/62-59-8-12/42

AUTHORS: Nazarov, I. N., Titov, Yu. A., Kuznetsova, A. I.

TITLE: Structural Orientation of the Diene Condensation of Isoprene With Unsymmetrical Dienophils

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 8, pp 1412-1420 (USSR)

ABSTRACT: The present paper contains a systematical investigation of the diene condensation of isoprene. In most cases it has so far been possible only to obtain the para-adduct, one of the two theoretically possible structural isomers. Petrov and Sapozhnikov (Ref 1) also obtained the meta isomer (1948). The authors in previous studies of the separation of the meta isomer from the isoprene adduct with the methyl esters of acrylic and methacrylic acids had reported on this subject (Ref 9). It could also be demonstrated that the diene condensation of the dimer of isoprene varies in its reaction mechanism in relation to the reaction temperature. Thus the synthesis was carried out at various temperatures, just as in reference 9 (20, 120, 200 and 400°). The structural formulas of the various adducts obtained and their formation processes are given. It is shown that the meta isomer yield increases with mounting temperatures. Furthermore an investigation was made

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SOV/62-59-8-12/42

Structural Orientation of the Diene Condensation of Isoprene With Unsymmetrical Dienophils

of the influence of the substituents on the meta adduct yield. Results showed that at an increase of the volume of the substituent in position  $\alpha$  the meta adduct yield decreases. In order to investigate the said influence isoprene was condensed with the esters of acrylic, methacrylic, and  $\alpha$ -isopropylacrylic acids. From the condensation of isoprene with acrylic acid, its methylester and nitrile as well as acrolein the two structural isomeric adducts can be obtained in a ratio 1 : 1. The results concerning the adducts found by various methods of synthesis are compiled in tables 1-3. The individual methods are described in the experimental part. There are 3 tables and 16 references, 8 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR  
(Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: October 22, 1957

Card 2/2

AKHREM, A.A.; TITOV, Yu.A.; LEVINA, I.S.

Synthesis of 1-carbomethoxy-2-methyl-3-acetyl-4-(p-anisyl)-  
 $\Delta^5$ -cyclohexene. Izv. AN SSSR. Ser. khim. no.10:1911-1912  
O '64. (MIRA 17:12)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

AKHREM, A.A.; TITOV, Yu.A.; LEVINA, I.S.

Synthesis of 2-methyl-3-ethyl-4(p-anisyl)- $\Delta^3$ -cyclohexene-  
1-carboxylic acid. Izv. AN SSSR Ser. khim. no.12:2246 D'64  
(MIRA 18:1)

1. Institut organicheskoy khimii imeni N.D. Zelinskogo AN SSSR.

SOV/62-59-9-13/40

5 (3)

AUTHORS:

Nazarov, I. N., Titov, Yu. A.,  
Kuznetsova, A. I.

TITLE:

The Structural Dependence of Diene Condensations of 2-Alkyl  
Butadienes With Asymmetric Dienophiles

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,  
1959, Nr 9, pp 1595 - 1604 (USSR)

ABSTRACT:

The diene condensation of 2-propyl- (1), 2-isopropyl- (2), and 2-tert.-butylbutadiene (3) with esters of the  $\alpha$ -substituted acrylic acid (methacrylic- and  $\alpha$ -isopropyl acrylic acid) was carried out for the investigation of the influence of the volume of the substituent in the diene and dienophile on the direction of the diene synthesis. The synthesis occurred by heating the diene and dienophile mixture at 200° during 2-10 hours. (1) condensed with methylacrylic acid ester yielded the adducts I and II, (yield 81%), from which they obtained a mixture of para- and meta-isomers of the phthalic acid (2.4 : 1) by the action of barium salts. (1) with methacrylic methylester (yield 65%) yielded a mixture of the adducts (III) and (V). By saponification and separation with barium salts again p- and m-derivatives of the adducts were obtained (3.4 : 1). Condensation of (2)

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The Structural Dependence of Diene Condensations of 2-Alkyl Butadienes With Asymmetric Dienophiles SOV/62-59-9-13/40

yielded the adducts (VII) and (VIII) which formed as p- and m-isomers of the phthalic acid (ratio 3 : 1). In the course of the investigations it was established that the increase of the volume of the alkyl substituents in the diene- and dienophile, the quantity of the meta-isomers reduced in the mixture of the adducts. The results are interpreted by the increase of space-obstruction at the increase of the substituent volume. There are 10 references, 3 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: October 22, 1957

Card 2/2

AKHREM, A.A.; TITOV, Yu.A.; KRAVCHENKO, Z.A.

New synthesis of an analog of steroid compounds without the  
ring B. Izv. AN SSSR Ser. khim. no.7:1355 J1 '64.

(MIRA 17:8)

1. Institut organicheskoy khimii imeni Zelinskogo AN SSSR.



AKHREM, A.A.; TITOV, Yu.A.

Diene synthesis reaction in the steroid series. Reakts. i  
metod. issl. org. soed. 14:9-172 '64. (MIRA 18:3)

L 50739-65 EWT:1 EEC:6.1-3 EWAVE Feb  
ACCESSION NO: AF501580

REF ID: A6 170 0000088-0088

AUTHOR: Titov, Yu. A.

TITLE: Cathode ray tube. Class 42, No. 170742

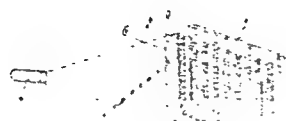
SOURCE: Bulleten' izobreteniy i izumovskikh rabot, no. 3, 1965, 88

luminescent screen.

ASSOCIATION: none

L 50739-45

ACCESSION NO. 450113.7



Card 2/2

AKHREM, Afanasiy Andreyevich; TITOV, Yuriy Andreyevich; RUDENKO,  
V.A., red.

[Microbiological transformations of steroids] Mikrobiologicheskie transformatsii steroidov. Moskva, Nauka, 1965.  
503 p. (MIRA 18:11)

TITOV, Yu.A.

Structural directivity of diene synthesis. *Usp.khim.* 31 no.5:  
529-558 My '62. (MIRA 15:5)

1. Institut organicheskoy khimii AN SSSR imeni Zelinskogo.  
(Unsaturated compounds) (Chemistry, Organic--Synthesis)

84855

53832

2209, 1370, 1153

S/062/60/000/010/008/016  
B015/B064

AUTHORS: Titov, Yu. A. and Kuznetsova, A. I.

TITLE: Structural Orientation of Diene Condensation of Butadiene-1-carboxylic Acid With Acrylic Acid and Styrene

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,  
1960, No. 10, pp. 1810-1814

TEXT: The present paper continues investigations on the laws of diene synthesis commenced under the direction of I. N. Nazarov. A condensation of butadiene-1-carboxylic acid was carried out with acrylic acid and styrene, the structural isomers in the reaction products were separated, and their ratio determined. Acrylic acid and styrene were chosen as dienophiles since the former contains an acceptor substituent and the latter a donor substituent. Thus, the influence of the electronic character of the substituent upon the ratio of the structural isomers may be studied. Both condensations were made at 150°C, and lasted six hours. A mixture of ortho- and meta-adducts in a ratio of 8.8 : 1 was

Card 1/3

84855

Structural Orientation of Diene Condensation  
of Butadiene-1-carboxylic Acid With  
Acrylic Acid and Styrene

S/062/60/000/010/008/018  
B015/B064

obtained in the condensation with acrylic acid. The ratio of the structural isomers for trans-ortho isomer : cis-ortho isomer was found to be 8.6 : 1. The ortho-oriented adducts and the trans-isomers predominated also in the styrene condensation products. The polarity of the diene and dieneophilic molecules was found to be of no importance in the structural orientation of diene synthesis. The latter is somewhat weakened by the introduction of an acceptor substituent into the diene, or of a donor substituent into the dienophile, and becomes stronger if the diene contains donor substituents and the dienophile acceptor substituents. A similar phenomenon can also be observed in diene synthesis (Refs. 6-8). The technique of condensation and hydrogenation of the adducts is described. There are 11 references: 1 Soviet, 7 US, 2 German, and 1 British.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences USSR)

Card 2/3

Structural Orientation of Diene Condensation  
of Butadiene-1-carboxylic Acid With  
Acrylic Acid and Styrene

84855

S/062/60/000/010/008/018  
B015/B064

SUBMITTED: May 13, 1959

Card 3/3



84856

5.3832

2209, 1153, 1370

S/062/60/000/010/009/018  
B015/B064

AUTHORS: Titov, Yu. A. and Kuznetsova, A. I.

TITLE: Structural Orientation of the Diene Condensations of  
2-Methoxy Butadiene and Chloroprene With Asymmetric  
Dienophiles

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,  
1960, No. 10, pp. 1815-1819

TEXT: The diene condensations of 2-methoxy butadiene and chloroprene were carried out with acrylic acid and styrene, the para- and meta-isomers separated from the mixture of adducts, and their ratio determined. The condensations were performed by heating (at 150°C for 5-12 hours) the mixture of the diene and the dienophile in benzene in steel ampoules. In the condensation with acrylic acid, the ratio between para- and meta-isomer in the adduct mixture was 8 : 1, in the condensation with styrene, 12 : 1, in the condensation of chloroprene with acrylic acid, 9.3 : 1, and with styrene, 14.4 : 1. Thus, it was

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84856

Structural Orientation of the Diene  
Condensations of 2-Methoxy Butadiene and  
Chloroprene With Asymmetric Dienophiles

S/062/60/000/010/C09/018  
B015/B064

found that in all condensations of 2-methoxy butadiene and chloroprene, mixtures of the two kinds of structural isomers are formed, with the para-oriented adduct predominating in the mixture. The amount of the meta-isomer does not change essentially. The structural orientation of chloroprene and styrene is somewhat more pronounced than that of 2-methoxy butadiene and acrylic acid. The lack of any essential difference in the ratio of the structural isomers of dienes and dienophiles with various kinds of substituents may be regarded as an argument in favor of the homologous reaction mechanism of diene synthesis. The techniques of the individual condensations are described. The present work forms part of the investigations commenced under the guidance of I. N. Nazarov. There are 19 references: 9 Soviet, 2 German, 4 US, 1 French, 1 Japanese, and 2 British.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences USSR)

Card 2/3

84856

Structural Orientation of the Diene  
Condensations of 2-Methoxy Butadiene and  
Chloroprene With Asymmetric Dienophiles

S/062/60/000/010/009/018  
B015/B064

SUBMITTED: May 13, 1959

X

Card 3/3

AKHREM, A.A.; KUZNETSOVA, A.I.; TITOV, Yu.A.; LEVINA, I.S.

Separation of acetylenic alcohols and glycols by means of thin layer chromatography on aluminum oxide. Izv.AN SSSR Otd.khim.-  
nauk no.4:657-661 Ap '62. (MIRA 15:4)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.  
(Alcohols) (Chromatographic analysis)

AKHMETI, A.A., doktor khim. nauk; TITOV, Yu.A., kand. khim. nauk

Anabolic steroids. Zhur. VMO 10 no. 6:684-686 '65  
(MIRA 19:1)

SOV/62-59-4-15/42

5(3)  
AUTHORS: Nazarov, I. N., Kuznetsova, A. I., Kuznetsov, N. V., Titov,  
Yu. A.

TITLE: Diene Condensations of 1,3-Dimethylbutadiene With Asymmetric  
Dienophilic Compounds (Diyenovyye kondensatsii 1,3-dimetil-  
butadiyena s nesimmetrichnymi dijenofilami)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,  
1959, Nr 4, pp 663-667 (USSR)

ABSTRACT: In the present work the condensation of 1,3-dimethylbutadiene  
with methyl acrylate and methylmethacrylate and with acrylo-  
nitrils was investigated. By heating 1,3-dimethylbutadiene with  
methyl acrylate at 220° a mixture of adducts (V) and (VI) in a  
yield of 60% was obtained. The asymmetric isomer (V) was pre-  
dominant. The adducts were dehydrogenated on carbon-supported  
palladium at 350°. The saponification of the dehydrogenation  
products gave a 26 : 1 mixture of known 2,4- and 3,5-dimethyl-  
benzoic acids. The condensation of 1,3-dimethylbutadiene with  
methyl methacrylate at 220° gave the adducts (VII) and (VIII)  
in a yield of 76%, the asymmetric isomer (VII) being again  
highly predominant. The saponification of the adducts gave a

Card 1/2

SOV/62-59-4-15/42

Diene Condensations of 1,3-Dimethylbutadiene With Asymmetric Dienophilic Compounds

mixture of liquid acids. The dehydrogenation of the mixture on carbon-supported palladium gives a mixture of trimethylbenzenes. The oxidation under pressure of this mixture diluted with nitrogenous acid gave an 18 : 1 mixture of trimellitic and trimesic acids. By heating 1,3-dimethylbutadiene with acrylonitril at 220° a 13 : 1 mixture of cyclic nitrils (IX) and (X) was obtained in a yield of 74%. Their structure was proved by the dehydrogenation to corresponding aromatic nitrils, which formed 2,4- and 3,5-dimethylbenzoic acids upon saponification. Thus it has been shown for the first time that mixtures of structure-isomeric adducts are formed by the condensation of 1,3-disubstituted butadienes with asymmetric dienophilic compounds. There are 5 references, 1 of which is Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: July 9, 1957  
Card 2/2

AKHREM, A.A.; LEVIN, I.S.; TITOV, Yu.A.

Condensation of 3-(4-methoxyphenyl)-2-cyclohexen-1-one with maleic anhydride. Izv. AN SSSR. Otd. khim. nauk no. 10: 1891-1893 0 '62. (MIRA 15:10)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.  
(Cyclohexenone) (Maleic anhydride)



NAZAROV, I.N.; TITOV, Yu.A.; KUZNETSOVA, A.I.

Structural orientation of diene condensations of 1-alkylbutadienes  
with unsymmetrical dienophiles. Izv.AN SSSR Otd.khim.nauk  
no.5:879-886 My '60. (MIRA 13:6)

1. Institut organicheskoy khimii imeni N.D. Zelinskogo Akademii  
nauk SSSR.

(Butadiene) (Piperylene) (Acrylic acid)

5 (3)

AUTHORS:

Nazarov, I. N.; Titov, Yu. A.;  
Kuznetsova, A. I.

SOV/62-52-7-17/38

TITLE:

Orientation of the Structure of the Diene Condensations of  
2-Phenyl-butadiene and of Trans-1-phenyl-butadiene With Un-  
symmetrical Dienophiles (Strukturnaya napravlennost' di-  
yenovykh kondensatsiy 2-fenilbutadiyena i trans-1-fenil-  
butadiyena s nesimmetrichnymi diyenofilami)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,  
1959, Nr 7, pp 1270 - 1279 (USSR)

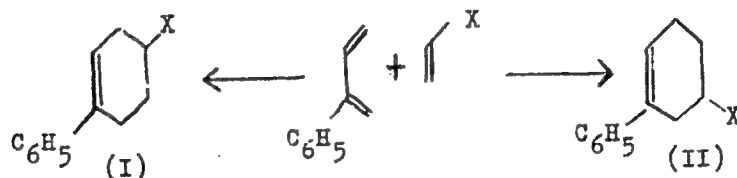
ABSTRACT:

The present paper is a continuation of a systematic investiga-  
tion of the rules governing the diene synthesis for the orien-  
tation of the synthesis in order to obtain certain structures  
carried out in the authors' laboratory. The synthesis of the  
unsymmetrically substituted dienes with unsymmetrical dieno-  
philes can be carried out by two methods; i.e. under forma-  
tion of two structure-isomeric adducts. Nearly always the mix-  
ture of these two structure isomers (Refs 1,2) is produced.  
This formation is assumed to be influenced by the nature of  
the substituents in the two compounds. The influence is in-  
vestigated here in the diene condensation from the two dienes

Card 1/3

Orientation of the Structure of the Diene Condensations of 2-Phenyl-butadiene and of Trans-1-phenyl-butadiene With Unsymmetrical Dienophiles SOV/62-59-7-17/38

mentioned in the title and different unsymmetrical dienophiles. The scheme of the condensation is assumed as it follows:



The condensation was carried out with the esters of the acrylic-, methacrylic acid, and styrene. The para- and meta-adducts (III) and (IV) are formed by the condensation with the methyl esters of the acrylic acid. The yield of meta-isomers is already in the condensation with methacryl esters low and does not exist in the case of styrene. The investigation of the structure and spatial orientation of the trans-1-phenyl-butadiene was carried out with the same dienophiles. Meta-isomers were in all cases found in the adduct. A reduction of the content of trans-ortho adducts could be found in the transition from the acryl- to the methacryl ester compared to the

Card 2/3

Orientation of the Structure of the Diene Condensa- SOV/62-59-7-17/38  
tions of 2-Phenyl-butadiene and of Trans-1-phenyl-  
butadiene With Unsymmetrical Dienophiles

cis-ortho adducts. The transformation schemes as they are ob-  
tained from the reactions, are represented and the transforma-  
tion and synthesis is described in detail in the experimental  
part. There are 25 references, 5 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii  
nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy  
of the Academy of Sciences, USSR)

SUBMITTED: October 22, 1957

Card 3/3

NAZAROV, I.N.[deceased], akademik; TITOV, Yu.A.; KUZNETSOVA, A.I.

Structural tendency of diene condensation of 1 and 2-alkylbutadienes  
with unsymmetrical dienophiles. Dokl.AN SSSR 124 no.3:586-588  
Ja '59. (MIRA 12:3)

1. Institut organicheskoy khimii imeni N.D. Zelinskogo AN SSSR.  
(Butadiene) (Dienophiles) (Chemical structure)

5(3)

AUTHORS: Titov, Yu. A., Kuznetsova, A. I.

SOV/20-126-3-35/69

TITLE: The Electronic Nature of Substituents in Diene and Dienophile and the Structural Trend of the Diene Synthesis (Elektronnaya priroda zamestiteley v diene i dienofile i strukturnaya napravlennost' dienovogo sinteza)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 3, pp 586 - 588 (USSR)

ABSTRACT: At diene condensations of asymmetrically substituted dienes with asymmetric dienophiles, 2 structure isomers are possible, one of which is predominant. Such structural selectivity is absolutely connected with the mechanism of diene synthesis. Its study can constitute one of the ways for determining the mechanism of this important reaction. For studying the problem last mentioned in the title, the authors chose the acrylic acid and styrol as dienophiles. These two substances were introduced in diene condensations with 1- and 2-substituted dienes. The results obtained are compiled in table 1. It indicates that the substituents studied here do not show any distinct differences as to their adjusting influence on diene condensations

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The Electronic Nature of Substituents in Diene and  
Dienophile and the Structural Trend of the Diene Synthesis

SO7/20-126-3-35/69

in spite of their variable electronic properties. Nevertheless, the ratio of the resulting polymers depends, to a certain degree, on the nature of substituents. The latter can be put in a series as to their adjusting influence on the diene follows:

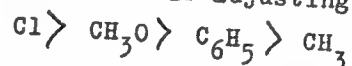


Table 1 shows the condensations of the 2-substituted butadienes with asymmetric dienophiles. Table 2 shows the same for 1-substituted butadienes. On the basis of the results obtained, the authors conclude that by the transition from an electron- transmitting to an electron-receiving substituent in the diene or in the dienophile the structural trend is not reversed as it should be in an ion mechanism of the diene synthesis (Refs 1,2). Therefore, the ion mechanism should be rejected as it cannot explain the course of reaction. A mechanism of the diene synthesis by kinetically independent free radicals with an open chain (Refs 3,4) also seems to be unacceptable as it is incompatible with an existing spatial selectivity of the reaction (Ref 5). The fact (Refs 6,7) that at a diene decay no free radicals arise,

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The Electronic Nature of Substituents in Diene and  
Dienophile and the Structural Trend of the Diene Synthesis

SOV/20-126-3-35/69

also speaks against it. It seems that for the diene synthesis the mechanism with a homolytic regrouping of electrons in the range of a cyclic transition complex is most probable, the latter being stereochemically similar to the adduct. This paper continues the investigations started under the direction of I. N. Nazarov. There are 2 tables and 7 references.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR (Institute of Organic Chemistry of the Academy of Sciences, USSR)

PRESENTED: March 3, 1959, by B. A. Kazanskiy, Academician

SUBMITTED: February 27, 1959

Card 3/3



5(3)

AUTHORS:

Nazarov, I. N., Academician (Deceased), Titov, Yu. A.,  
Kuznetsova, A. I. SOV/20-124-3-26/67

TITLE:

The Structural Orientation of the Diene-Condensations of  
1- and 2-Alkylbutadienes With Asymmetric Dienophiles  
(Strukturnaya napravlennost' dienyovykh kondensatsiy 1- i  
2-alkilbutadiyenov s nesimmetrichnymi diyenofilami)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 3, pp 536-538  
(USSR)

ABSTRACT:

For the purpose of a systematic study of the influences of various alkyl substituents in the diene and dienophile on the proportion of the resulting isomers, diene-condensations of esters of acrylic acid, methacrylic acid, and  $\alpha$ -isopropyl-acrylic acid with isoprene, 2-propyl-, 2-isopropyl- and 2-tertiary-butyl-butadiene, as well as with piperylene, 1-isopropyl-, 1-butyl- and 1-tertiary-butyl-butadiene were carried out. All condensations were effected by heating the components in steel ampullae for several hours to 200°C, with the addition of 0.1 - 0.2% hydroquinone as a polymerization inhibitor. The ratio of the structural isomers was determined by means of dehydration over 15-20% palladium coal

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The Structural Orientation of the Diene-Condensations of 1- and 2-Alkylbutadienes With Asymmetric Dienophiles

SOV/20-124-3-26/67

at 340-350°C, oxidation of the resulting alkyl benzoic acids or dialkyl benzenes into a mixture of isomeric phthalic acids, and separation of their barium salts by means of crystallization. - It was found that, with an increasing alkyl substituent volume at the 2-alkylbutadienes and dienophiles, the reaction becomes increasingly selective. The relative share of the meta-isomer is lowered rapidly as compared with that of the para-isomer. In the 1-alkylbutadienes, however, an opposite selection occurs, and the share of the meta-isomers rises. - This difference can be explained by the strong influence of steric factors. With an increasing substituent volume and a simultaneously increasing repulsion, there is a rise in the yield of that isomer which is formed via sterically less impeded transitional complexes. There are 2 tables and 13 references, 3 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR  
(Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

Card 2/3

TITOV, Yu.A.; KUZNETSOVA, A.I.

Structural directivity of diene condensations of 1-butadienecarboxylic acid with acrylic acid and styrene. Izv. AN SSSR Otd. khim. nauk no.10:1810-1814 O '60.  
(MIRA 13:10)

1. Institut organicheskoy khimii im. N.D. Zelinskogo Akademii nauk SSSR.

(Butadienecarboxylic acid) --- (Acrylic acid) --- (Styrene)

TITOV, Yu.A.; KUZNETSOVA, A.I.

Structural directivity of diene condensations of 2-methoxybutadiene and chloroprene with unsymmetrical dienophiles. Izv. AN SSSR Otd. khim. nauk no.10:1815-1819 O '60. (MIRA 13:10)

1. Institut organicheskoy khimii im. N.D. Zelinskogo Akademii nauk SSSR.

(Chloroprene)

(Ether)

(Dienophiles)

AKHREM, A.A.; TITOV, Yu.A.; MINAYEVA, I.N.

Synthesis of methyl ether of 18-nor-D-homoequilenin. Izv. AN SSSR.  
Otd.khim.nauk no.6:1164 Je '61. (MIRA 14:6)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.  
(Estrapentaenone)

AKHREM, A.A.; TITOV, Yu.A.

Chemistry of 19-norsteroids. Usp.Khim. 33 no.2:151-181 F '64.

1. Institut organicheskoy khimii imeni N.D.Zelinskogo AN SSSR.  
(MIRA 17:10)

41323-66 EWI(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6019610 (A,N)

SOURCE CODE: UR/0048/66/030/002/0224/0228

AUTHOR: Klyucharev, A.P.; Titov, Yu.I.

ORG: Khar'kov State University (Khar'kovskiy gosudarstvennyy unidersitet)

TITLE: The (d,p) reaction on <sup>12</sup>C at low deuteron energies /Report, Fifteenth Annual Conference on Nuclear Spectroscopy and Nuclear Structure, held at Minsk, 25 Jan. to 2 Feb. 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 2, 1966, 224-228

TOPIC TAGS: nuclear reaction, deuteron, proton, carbon, compound nucleus, angular distribution

ABSTRACT: The differential cross section for the <sup>12</sup>C(d,p)<sup>13</sup>C reaction has been measured at deuteron energies from 0.5 to 1.8 MeV. The scattering chamber and semi-conductor detectors employed in the investigation have been described elsewhere by V.Yu.Gonchar, I.I.Zalyubovskiy, L.A.Zubritskiy, Yu.I.Titov, and G.P.Chursin (Izv. AN SSSR, Ser. fiz., 28, 102 (1964)). The detector was shielded with a 19.6 mg/cm<sup>2</sup> aluminum foil to eliminate the elastically scattered deuterons. Energy calibration was effected with the aid of a Po<sup>210</sup> source mounted in the scattering chamber. The energy scatter of the deuteron beam was less than 10 keV. A thin unbacked carbon target was employed; its thickness, defined in terms of 0.75 MeV protons elastically scattered at 70°, amounted to 5 to 7 keV at different energies. Excitation functions

Card 1/2

L 41323-66

ACC NR: AP6019610

of the reaction at three different angles and the differential cross section as a function of angle at 10 different deuteron energies are presented graphically. The angular distributions were expressed as sums of Legendre polynomials and the coefficients of the polynomials are presented graphically as functions of the deuteron energy. Five Legendre polynomials were adequate to represent the angular distributions; the ratio of the coefficient of  $P_4$  to that of  $P_0$  did not exceed 0.08. From the angular distributions it is concluded that over the investigated energy range the reaction goes via compound nucleus formation and the contribution of direct processes cannot exceed the 3% experimental error. Previously known resonances corresponding to excitation energies of the  $N^{14}$  compound nucleus of 11.10, 11.29, 11.39, and 11.50 MeV were observed and the spin and parity assignments of E.Kashy, R.R.Perry, and R.I. Risser (Phys.Rev., 117, No.5 (1960)) were confirmed. A resonance was also observed corresponding to a compound nucleus excitation of 11.72 MeV; the spin and parity of the 11.72 MeV  $N^{14}$  state are  $2^-$ . Orig. art. has: 4 figures and 1 table.

SUB CODE: 20

SUBM DATE: 00

ORIG. REF: 002

OTH REF: 008

Card

2/2



L 41242-66 ENT(m)/ENP(t)/ETI JET(c) JD  
ACC NR: AP6019611 (A,N)

SOURCE CODE: UR/0048/66/030/002/0229/0231

AUTHOR: Klyucharev, A.P.; Titov, Yu.I.

ORG: Khar'kov State University Khar'kovskiy gosudarstvennyy universitet)

TITLE: On measurement of charged particle spectra at small angles /Report, Fifteenth Annual Conference on Nuclear Spectroscopy and Nuclear Structure, held at Minsk, 25 Jan. to 2 Feb. 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 2, 1966, 229-231

TOPIC TAGS: charged particle, particle counting, particle spectrum, pulse height discriminator, silicon diode

ABSTRACT: There is described an electronic device that facilitates detection and measurement of the energies of charged particles against a high background of lower energy particles. The device was developed in connection with investigation of the  $\alpha$  particles from the  $^{13}\text{C}$  (d, $\alpha$ ) $^{11}\text{B}$  reaction against the background of elastically scattered deuterons. The difficulty arises from superposition of several background pulses to form a single pulse that can pass the discriminator. The idea of the described technique is immediately to shorten the pulses by differentiation, to discriminate against the background pulses while the pulses are short, and subsequently to stretch the pulses so that they can operate a commercial pulse height analyzer.

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L 41288-66

ACC NR: AP6019611

In the experiments with the  $\text{Cl}^{35}(\text{d},\alpha)\text{B}^{11}$  reaction, the pulse length at the discriminator was 0.2 microsec. The significant features of the discriminator and pulse stretcher unit were the use of a type D101 silicon point diode as discriminator and the use of a thermionic diode, rather than a crystal diode, in the pulse stretcher stage. The discriminator diode, whose capacity (with a 10 V back bias) was only 0.5pF, was very stable in operation. A silicon diode proved unsuitable for use in the pulse stretcher stage, however, because passage of a 10 mA forward current greatly reduced its back resistance, which did not recover until after 0.5 microsec. Orig. art. has: 3 figures.

SUB CODE: 09,20

SUBM DATE: 00

ORIG. REF: 002

OTH REF: 001

Card

2/2 LC

GONCHAR, V.Yu.; ZALYUBOVSKIY, I.I.; ZUBRITSKIY, L.A.; TITOV, Yu.I.;  
CHURSIN, G.P.

Semiconductor spectrometer for charged particles. Izv. AN SSSR.  
Ser. fiz. 28 no.1:102-104 Ja '64. (MIRA 17:1)

1. Institut yadernoy fiziki AN KazSSR i Khar'kovskiy gosudarstvennyy  
universitet.

TITOV, Yu.N., inzh.

Causes of the deformation of structures built on artificailly  
frozen ground. Transp.stroi. 9 no.7:44-47 J1 '59.

(MIRA 12:12)

(Leningrad--Subway) (Soil freezing)

TITKOV, Yu.S., inzh.

Design of tank bottom span coverings. Sudostroenie 22 no.3:  
9-10 Mr '62. (MIRA 15:4)  
(Hulls (Naval architecture))

ТИОВ, Ye.V.

Apparatus for the collection of root exudations. 1st ed. 1964.  
Fil. AN SSSR no.39147-149 164. (RZK 18:3)

GUMBO, A.M.: CH. 101811, Ye.V.; 1110V, Cu.Yo.; 1111, Ye.V.

On the way to the house for the first time.  
conditions of electrodepolarization. Zashch. at. Energ. 1965.  
713 Nov 1965. (1965 11)

SOV/65-59-4-14/14

AUTHORS: Golov, G.S., Ignatenko, M.A. and Titova, A.A.  
TITLE: The Lay-Out of Gas Fractionating Plants in Petroleum  
Refineries (O skhemakh gazofraktsioniruyushchikh  
ustanovok na neftepererabatyvayushchikh zavodakh)  
PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1959, Nr 4,  
pp 69-72 (USSR)  
ABSTRACT: The authors refer to two articles by P.A.Smirnov which  
were published in Khimiya i tekhnologiya topliv i  
masel, 1958, Nr 2, p 7 and 1959, Nr 1, p 9. They  
suggest further modifications (Fig 1 and 2) and  
recommend that a fractionating absorber-de-ethaniser  
unit should be included in the design of gas fractionating  
plants which are used for the processing of gas and  
unstable gasoline obtained by catalytic cracking. Power  
consumption is considerably reduced. The degree of  
separation of the propane-propylene fraction can be  
increased when unstable gasoline and a calculated  
quantity of stable gasoline are used as absorbing  
agents. Two tables give comparative data on the yield

Card 1/2



SOV/65-59-4-14/14

The Lay-Out of Gas Fractionating Plants in Petroleum Refineries  
of industrial products (in per cent mol). There are  
2 figures and 2 tables.

Card 2/2

USCOMM\_DC-61,022

1002-01 EWT(1) IJP(c)

ACC NR: 0P6029119

SOURCE CODE: UR/0048/66/030/006/1002/1007

AUTHOR: Gurevich, A.G.; Lobed', B.M.; Mironov, S.A.; Starobinets, S.S.; Titova, A.G.; Shevlyagin, K.V.

ORG: Institute of Semiconductors, Academy of Sciences of the USSR (Institut poluprovodnikov Akademii nauk SSSR)

TITLE: Excitation of magnetoelastic waves [Report, All-Union Conference on the Physics of Ferro- and Antiferromagnetism held 2-7 July 1965 in Sverdlovsk]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 6, 1966, 1002-1007

TOPIC TAGS: yttrium compound, garnet, single crystal, spin phonon interaction, magneto-acoustic effect

ABSTRACT: The authors have investigated the excitation at frequencies from 0.2 to 3 kHz of magnetoelastic waves in three single crystal yttrium garnet specimens from 2.3 to 6.9 mm long and from 2 to 5 mm in diameter having polished ends that were parallel within 15" and perpendicular to the [111] axis within 1°. The constant external magnetic field was uniform and parallel to the axis of the specimen (the [111] axis of the crystal). The specimen was mounted between two identical cavity resonators, of which one served to produce the exciting high frequency magnetic field (which was parallel to the face of the specimen) and the other, to detect the transmitted wave. Magnetoelastic waves could be observed under optimal conditions with an

Card 1/2

L 08752-67

ACC NR: AP6029119

excitation power of the order of microwatts. The delay of the magnetoelastic wave decreased monotonically with increasing magnetic field strength in qualitative agreement with the theory of E.Schlömann and R.I.Joseph (J. Appl. Phys., 35, 159, 167, 2382 (1964)). The magnetoelastic waves were much less highly damped than is predicted by the Schlömann theory. The authors discuss possible reasons for this behavior alternative to the suggestion of W.Strauss and F.G.Eggers (Appl. Phys. Lett., 6, 18 (1965)), which they find unconvincing. Magnetoelastic waves were also observed in magnetic fields that were somewhat stronger than the maximum fields in which they should theoretically appear. It is concluded that further theoretical work is needed. The authors thank G.A.Smolenskiy for valuable discussions. Orig. art. has: 5 formulas and 5 figures.

SUB CODE: 20      SUBM DATE: 00      ORIG. REF: 002      OTH REF: 015

Cord 2/2 bc

L 02257-67 EWT(1)/EWT(m)/T/EWP(t)/ETI IJP(c) GG/WW/JD  
ACC NR: AP6015475 (N) SOURCE CODE: UR/0181/66/008/005/1533/1535

AUTHOR: Lebed', B. M.; Mukha, L. Ya.; Mosel', V. I.; Titova, A. G.

54  
52  
B

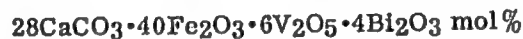
ORG: none

TITLE: Ferromagnetic resonance in a single crystal of the garnet  $\text{Bi}_{0.5}\text{Ca}_{2.5}\text{Fe}_{3.75}\text{V}_{1.25}\text{O}_{12}$

SOURCE: Fizika tverdogo tela, v. 8, no. 5, 1966, 1533-1535

TOPIC TAGS: ferromagnetic resonance, single crystal structure, temperature dependence, garnet

ABSTRACT: The aim of the present work is to investigate the temperature dependence of the line width of ferromagnetic resonance  $\Delta H$  on the single crystal  $\text{Bi}_{0.5}\text{Ca}_{2.5}\text{Fe}_{3.75}\text{V}_{1.25}\text{O}_{12}$ . The single crystals were obtained by the method of crystallization from the melt with the composition



at a cooling rate of 2C/hr. The temperature dependence was measured on a polished spherical specimen of the single crystal in the temperature range of 4.2-530K at five fixed frequencies in the range of 495-9250Mc. It is established that the minimal width of the line  $\Delta H = 0.5$  e at the frequency of 9250Mc is observed at 4.2K for the [111] direction. For direction [100] at the

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L 02257-67

ACC NR: AP6015475

2

same temperature,  $\Delta H = 1.3$  e. With a decrease in frequency, the anisotropy of  $\Delta H$  decreases and the minimal width of the line is observed at higher temperatures. In conclusion, the authors express their gratitude to A. G. Gurevich and A. P. Erastova for interest in the work. Orig. art. has: 1 formula and 2 figures.

SUB CODE: 20/ SUBM DATE: 21Oct65/ ORIG REF: 002/ OTH REF: 003

Card 2/2 pb

TITOVA, A.G.

Growing yttrium ferrite single crystals. Fiz.tver.tela 1  
no.12:1871-1873 D '59. (MIRA 13:5)

1. Institut poluprovodnikov AN SSSR, Leningrad.  
(Yttrium ferrate crystals)

RUBINSHTEIN, B.Ye.; LOGOVA, A.L.; LAPOVOK, B.L.

Compensation of magnetic moments of sublattices in yttrium  $\text{FeGa}$  garnet. Fiz. tver. tela 7 no.6:1639-1641 Je '65.

(MIRA 18:6)

L 9247-66 EWT(1)/EWP(e)/EWT(m) IJP(c) WW/GG/WH  
 ACC NR: AP5022746  
 SOURCE CODE: UR/0191/65/007/009/2867/2868  
 AUTHOR: Rubinshteyn, B. Ye.; Titova, A. G.  
 ORG: none  
 TITLE: Ferromagnetic resonance in  $\text{Bi}_{0.48}\text{Ca}_{2.52}\text{Fe}_{3.74}\text{V}_{1.26}\text{O}_{12}$  garnet single crystals  
 SOURCE: Fizika tverdogo tela, v. 7, no. 9, 1965, 2867-2868  
 TOPIC TAGS: ferromagnetic material, ferromagnetic resonance, garnet, single crystal, bismuth compound, calcium compound, iron compound, vanadium compound  
 ABSTRACT: The authors study the width of the ferromagnetic resonance line in garnets of composition  $\text{Bi}_{1-2x}\text{Ca}_{2x}\text{Fe}_{5-x}\text{V}_x\text{O}_{12}$ . Single crystal specimens with  $x = 1.26$  were grown and the ferromagnetic resonance was studied in the 9100 Mc region. The results of measurements are given in the table.

TABLE

T, °K	2ΔH, oe	$\frac{K_1}{M}$ , oe	$-K_1$ , erg/cm <sup>3</sup>	θ
298	1.95	51	$1.9 \cdot 10^3$	2.002
77	1.95	201	$10.0 \cdot 10^3$	1.993

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L 9247-66

ACC NR: AP5022746

The experimental data show that this type of garnet has a comparatively narrow ferro-  
magnetic resonance line which is apparently nearly independent of temperature. In  
conclusion, the authors thank A. A. Shvarts for his interest in the work. Orig. art.  
has: 1 table. 3

SUB CODE: 20/

SUBM DATE: 20Mar65/

ORIG REF: 001/

OTH REF: 002

Card 2/2 *pu*

ACC NR: AP7002412

SOURCE CODE: UR/0763/66/002/012/2260/2261

AUTHOR: Titova, A. G.; Yerastova, A. P.; Petrov, R. A.

ORG: none

TITLE: Growing and certain properties of ferromagnetic garnet crystals

$\text{Bi}_{3-2x}\text{Ca}_{2x}\text{Fe}_{5-x}\text{V}_x\text{O}_{12}$

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 12, 1966, 2260-2261

TOPIC TAGS: garnet, saturation magnetization, vanadium compound, bismuth compound, calcium compound, iron compound

ABSTRACT: The object of the work was to grow single crystals of solid solutions in the system  $\text{Bi}_{3-2x}\text{Ca}_{2x}\text{Fe}_{5-x}\text{V}_x\text{O}_{12}$  in order to study ferromagnetic resonance  $2\Delta H$ , magnetic and certain other properties of these crystals. The crystals were grown by crystallization from solution in the melt;  $x$  ranged from 0.96 to 1.46. Also grown were garnet single crystals with a minimum bismuth content:  $\text{Bi}_{0.08}\text{Ca}_{2.92}\text{Fe}_{3.54}\text{V}_{1.46}\text{O}_{12}$ . In addition to the garnet, two crystalline phases,  $\text{CaFe}_2\text{O}_4$  and  $\text{PbFe}_{12}\text{O}_{19}$ , were formed. Goniometric measurements showed that in contrast to  $\text{Y}_3\text{Fe}_5\text{O}_{12}$  crystals, the  $\text{Bi}_{3-2x}\text{Ca}_{2x}\text{Fe}_{5-x}\text{V}_x\text{O}_{12}$  crystals have cube faces  $\{100\}$  in addition to  $\{110\}$  and  $\{211\}$  faces. A study of the structure of these faces showed their different solubilities in the mother liquor. As the vanadium content decreases from 1.46 to 1.0, the saturation magnetization decreases, while the ferromagnetic resonance width increases. The  $\text{Bi}_{10}\text{Ca}_{2.0}\text{Fe}_{4.0}\text{V}_{1.0}\text{O}_{12}$  crystals are not magnetic. Crystals with  $x \geq 1.25$  have a

UDC: 553.85

Card 1/2

ACC NR: AP7002412

relatively low value of  $2\Delta H$  and are therefore strong competitors of expensive yttrium iron garnet. Orig. art. has: 2 figures.

SUB CODE: 07/ SUBM DATE: 12Jan66/ ORIG REF: 002/ OTH REF: 002

Card

2/2

TITOV, A. C.

PHASE I BOOK EXPLORATION SOV/4893

Vassonnoye soveshchaniye po fizike, fiziko-khimicheskim svoystvam ferritov i fizicheskim osnovam ikh primeneniya. 35. Minsk, 1959  
 Ferrity: fizicheskiye i fiziko-khimicheskiye svoystva. Doklady (Ferrites; Physical and Physicochemical Properties. Reports) Minsk, Izd-vo AN BSSR, 1960. 655 p. Errata slip inserted. 4,000 copies printed.

Sponsoring Agencies: Nauchnyy sovet po magnetizmu AN SSSR. Otdel fiziki tverdogo tela i poluprovodnikov AN BSSR.

Editorial Board: Resp. Ed.: M. M. Sirota, Academician of the Academy of Sciences USSR; K. P. Belov, Professor; Ye. I. Kondorskiy, Professor; K. M. Polivanov, Professor; B. V. Telesnin, Professor; G. A. Smolenskiy, Professor; N. M. Sholits, Candidate of Physical and Mathematical Sciences; E. M. Smolyarenko, and L. A. Bashkirev; Ed. of Publishing House: S. Kholzavskiy; Tech. Ed.: I. Volkhanovich.

NOTE: This book is intended for physicists, physical chemists, radio electronics engineers, and technical personnel engaged in the production and use of ferromagnetic materials. It may also be used by students in advanced courses in radio electronics, physics, and physical chemistry.

CONTENTS: The book contains reports presented at the Third All-Union Conference on Ferrites held in Minsk, Belorussian SSR. The reports deal with magnetic transformations, electrical and galvanomagnetic properties of ferrites, studies of the growth of ferrite single crystals, problems in the chemical and physical properties of ferrites, and studies of the properties of ferrite rectangular hysteretic loops and multicomponent ferrite systems exhibiting spontaneous rectangularity, problems in magnetic attraction, highly coercive ferrites, magnetic spectroscopy, ferromagnetic resonance, magneto-optics, physical principles of using ferrite components in electrical circuits, anisotropy of electrical and magnetic properties, etc. The Committee on Magnetism, AS USSR (S. V. Vonsovskiy, Chairman) organized the conference. References accompany individual articles.

Alukov, M. S. Theory of the Rectangular Hysteresis Loop	23
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L 04659-67 EWT(m)/T/EWP(t)/ETI LJP(c) JD

ACC NR: AT6002239

SOURCE CODE: UR/2564/65/006/000/0098/0104

AUTHOR: Gendelev, S. Sh.; Titova, A. G.

ORG: none

TITLE: Peculiarities of growth of yttrium aluminum garnet crystals

SOURCE: AN SSSR. Institut kristallografi. Rost kristallov, v. 6, 1965, 98-104

TOPIC TAGS: garnet, yttrium compound, crystal growing, crystal growth, crystallization, nucleation, nonmetallic inclusion

ABSTRACT: Yttrium-aluminum garnet,  $Y_3Al_5O_{12}$  crystals, isomorphous with yttrium-iron garnet,  $Y_3Fe_5O_{12}$  crystals, were grown from  $PbO-PbF_2$  fluxed melt to study morphology of these technically important crystals. The growth process was briefly described. The  $Y_3Al_5O_{12}$  single crystals were preferentially formed by  $\{110\}$  planes but some also by  $\{211\}$  planes. The predominant morphological role of the  $\{110\}$  faces in  $Y_3Al_5O_{12}$ , in contrast with  $Y_3Fe_5O_{12}$  crystals, was due to the absence of a deficiency of  $Y^{3+}$  ions in relation to  $Al^{3+}$  ions. The single crystals up to 2cm in size were obtained. Smaller crystals were homogeneous, but larger ones contained multiphase inclusions. The inclusions were studied micrographically. This study made it possible to detect three basic consecutive crystallization phases: a normal nucleation, a prolonged dendritic growth, and the final growth of plane surfaces. The source of inclusions in a transparent crystal was crystallization of the impoverished melt entrapped between the layers growing in opposition to each other in the dendritic growth phase. The formation of various defective forms on  $\{110\}$  and  $\{211\}$  crystal faces was discussed in terms of growth conditions. Orig. art. has: 6 figures.

SUB CODE: / SUBM DATE: none / ORIG REF: 015 / OTH REF: 006

Card 1/1 fV

89271

S/181/61/003/001/003/042  
B102/B212

24.7900 (1147, 1158, 1160)

AUTHORS: Gurevich, A. G., Gubler, I. Ye., and Titova, A. G.

TITLE: Temperature dependence of the width of the resonance curve,  
and relaxation processes in ferrite single crystals

PERIODICAL: Fizika tverdogo tela, v. 3, no. 1, 1961, 19-31

TEXT: One of the most suited methods for studying relaxation processes in ferromagnetic materials is based on the analysis of the temperature dependence of the width ( $2\Delta H$ ) of ferromagnetic resonance absorption curves in ferrite single crystals. This paper reports on such measurements. Spherical yttrium-ferrite single crystals with a garnet structure, and manganese and magnesium-manganese ferrites with a spinel structure served as specimens; the measurements were made in the range from  $-196^{\circ}\text{C}$  to the Curie point of these ferrites. The growing of the single crystals is described briefly. A standard method has been used to determine  $2\Delta H$  at 9100 Mc. Altogether 6 specimens have been investigated, and their characteristics are given in a table. Fig. 2 shows  $2\Delta H$  as a function of temperature for these 6 specimens; Fig. 3 shows  $\lambda''_{\text{res}}(T)$  for specimen no. 1

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Temperature dependence of the...

( $\lambda_{\text{res}}$  denotes the imaginary part of the diagonal component of the "external" susceptibility tensor at the point of ferromagnetic resonance).  $2\Delta H$  is determined in ferrite single crystals by the following processes: Interaction of homogeneous precession with spin waves; relaxation processes, in which magnetic impurity ions with a strong frequency spin-lattice relaxation take part; excitation of spin waves (with  $k \sim 10^5 - 10^6 \text{ cm}^{-1}$ ) as a result of scattering of a homogeneous precession from microscopic magnetic fluctuations which are caused by a random distribution of magnetic ions among the lattice sites; a widening of the resonance curve, caused by the roughness of the specimen's surface; and incoherent relaxation processes due to thermal fluctuations of the magnetic moment. The latter effect entails a rapid increase of  $2\Delta H$  when approaching the Curie point. When analyzing the  $2\Delta H = f(T)$  curves, it is assumed that  $n$  processes that influence  $2\Delta H$  are additive:  $2\Delta H = \sum_n (2\Delta H)_n$ . A detailed discussion is then given of the

effect of the roughness of the specimen; of fluctuations near the Curie point; of rare-earth impurities; and of impurities and magnetic disorder in spinels. The results of the investigation lead to following conclusions: 1) The component of  $2\Delta H$ , due to the roughness of the specimen,

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Temperature dependence of the...

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is approximately proportional to the magnetization; the factor of proportionality is not a function of the ferrite composition. 2) The relaxation frequency of rare-earth impurity ions in Y-ferrite grows from  $2 \cdot 10^{12}$  to  $6 \cdot 10^{13}$  when heating the specimen from  $-196^{\circ}$  to  $+200^{\circ}\text{C}$ ; at room temperature it has a value of  $3 \cdot 10^{13}$ . 3) The relaxation mechanism characteristic of spinel-type ferrites leads to a  $2\Delta H$  component of several oersteds caused by a spin-wave excitation; therefore it is possible to measure resonance curve widths of less than 10 oersteds in single crystals of such ferrites. 4) The  $2\Delta H$  component caused by thermal fluctuations of magnetization increases in proportion to  $(T_0 - T)^{-1/2}$  when approaching the Curie point. 5) Due to the fact that the latter component grows with increasing temperature, while the components caused by impurity ions and by the roughness of the specimen decrease, all  $2\Delta H = f(T)$  curves have a minimum above room temperature. Position and distinctness of this minimum is a function of the values and temperature dependence of these components. Increasing roughness, e.g., brings about a shift of this minimum to higher temperatures. The authors thank Professor G. A. Smolenskiy for discussions; F. M. Samigullin participated in measurements. N. N. Parfenova and Ya. I. Shtreys of NII

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Temperature dependence of the...

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tokov vysokoy chastoty im. V. Vologdina (Scientific Research Institute of High-frequency Currents imeni V. Vologdin), and E. Ye. Telezhkina and M. A. Zaytseva of VNII abrazivov i shlifovaniya (All-Union Scientific Research Institute of Abrasives and Grinding) are mentioned. There are 8 figures, 1 table, and 19 references: 7 Soviet-bloc and 12 non-Soviet-bloc. EX

ASSOCIATION: Institut poluprovodnikov AN SSSR Leningrad (Institute of Semiconductors, AS USSR, Leningrad)

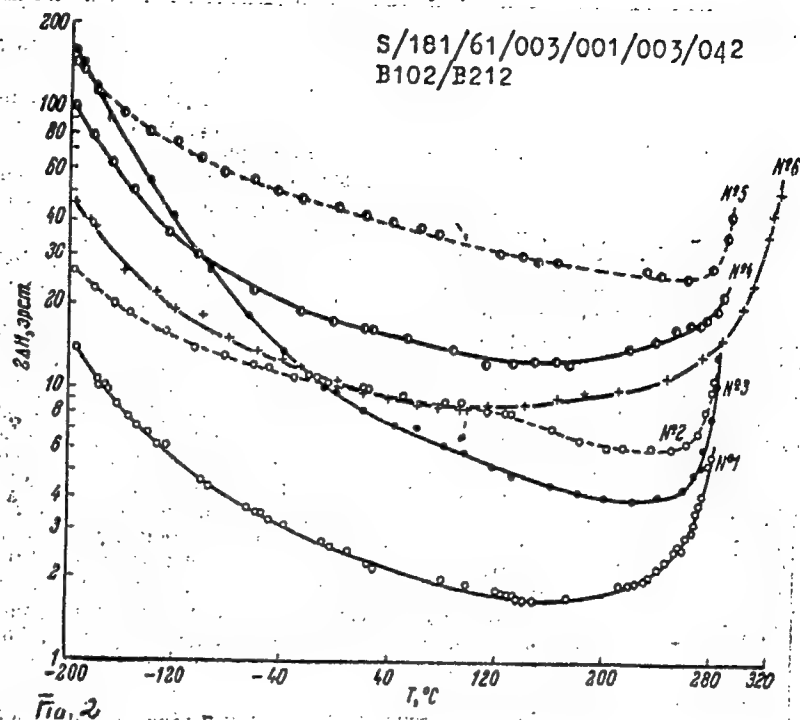
SUBMITTED: June 17, 1960

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Temperature dependence

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B102/E212



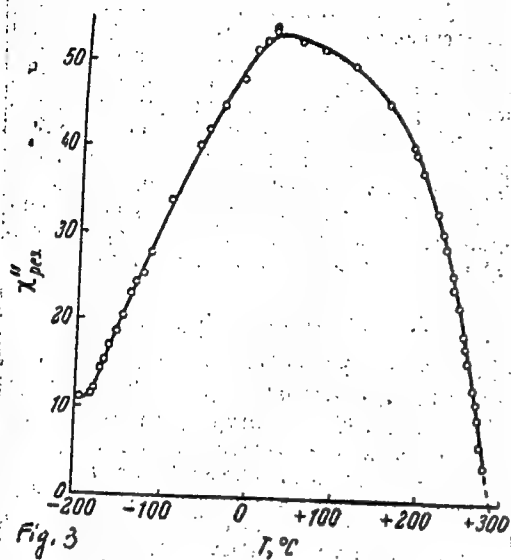
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Fig. 2

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Temperature dependence of the...

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Temperature dependence of the...

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Legend to Table: 1) Number of specimen; 2) composition; 3) diameter (mm); 4) grain size ( $\mu$ ) of abrasives, with which the specimens were finally polished; 5) magnetization (gauss) at 20°C and  $H = 3250$  oe; 6) Curie point, (°C); 7)  $2\Delta h$  (oersteds) at -196°C, 20°C, and minimum value; 8) minimum temperature.

1 Номер образца	2 Состав	3 Диаметр сфер, мм	4 Размер зерна абразива (шуга), на котором проводилась окончательная обработка сфер, мк	5 Насыщенность при 20°С и $H = 3250$ эрст.	6 Точка Кюри, °С	7 Ширина резонансной линии, эрст.			8 Температура минимума, °С
						при -196°С	при 20°С	минимальная	
1	$Y_3Fe_5O_{12}$	0.47	1-3	130	290	14	2.2	1.6	170
2		0.55	60	—	290	26	10	6	240
3		0.49	1-3	—	—	165	8.5	3.9	230
4	$Mn_{1.03}Fe_{1.85}O_4$	0.60	1-3	320	300	101	16	12	150
5		0.58	60	—	—	148	41	26	260
6	$Mg_{0.525}Mn_{0.885}Fe_{1.81}O_4$	0.76	1-3	230	333	46	9.5	8.5	100

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L 17123-65 EWT(1)/EWT(m)/EWC(1)/EWP(b)/EN(t) Feb AZDC(a)/AC(1)  
 AS(mp)-2/AFWL/PAEN(a)/PALM(a) t (IUP) SD  
 ACCESSION NR: AP5000649 S/0181/64/006/012/3538/3544

AUTHOR: Rubinshteyn, B. Ye.; Titova, A. G.; Lapovok, B. L.

TITLE: Ferromagnetic resonance in single crystals of yttrium iron-indium garnet

SOURCE: Fizika tverdogo tela, v. 6, no. 12, 1964, 3538-3544

TOPIC TAGS: ferromagnetic resonance, yttrium iron garnet, single crystal, mixed garnet, relaxation effect, anisotropy, line width

ABSTRACT: In view of the fact that relaxation effects, the anisotropy fields, and the g-factor of mixed garnets can be investigated only with single-crystal samples, and earlier investigations were devoted essentially to polycrystalline samples, the authors present results of an experimental investigation of ferromagnetic resonance in single crystal garnets  $Y_3Fe_{5-x}In_xO_2$  with  $0 \leq x \leq 0.48$ . The tests were made in the temperature interval between 77K and the Curie temperature. The single crystals were obtained using yttrium oxide from the same batch to maintain the amount of impurities constant. The samples were in the form of spheres  $\sim 0.5$  mm in diameter, produced

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ACCESSION NR: AP5000649

by air blasting and polishing. The ferromagnetic resonance investigations were made at  $\sim 9100$  Mcs in a through-type cavity operating in the  $TE_{015}$  mode, using a measurement procedure analogous to that described by A. G. Gurevich et al. (PTE No 1, 73, 1963). The temperature dependence of the line width and of the first crystallographic anisotropy constants were obtained for all the investigated samples. The results show that the effective g-factor of the substituted garnet decreases with increasing  $x$ , and an explanation is proposed for this effect. "The authors thank A. G. Gurevich for interest in the work and for numerous discussions, C. Sh. Gendelev for fruitful discussions of questions connected with the crystallographic features of garnet structure, and T. N. ... for help with the numerous and laborious measurements." Original has 3 figures and 3 formulas

ASSOCIATION: None

SUBMITTED: 18May64

ENCL: 00

SUB CODE: SS, EM

NR REF SOV: 002

OTHER: 010

Card 2/2

GUREVICH, A.G.; GUBLER, I.Yo.; TITOVA, A.G.

Effect of temperature on the width of the resonance curve and  
relaxation processes in ferrite single crystals. Fiz. tver.  
tela 3 no.1:19-31 Ja '61. (MIRA 14:3)

1. Institut poluprovodnikov AN SSSR, Leningrad.  
(Ferrites)

TITLE: Compensation of magnetic moments of sublattices in yttrium iron-gallium garnet

SOURCE: Fizika tverdogo tela, v. 7, no. 6, 1965, 1639-1641

TOPIC TAGS: yttrium, iron, garnet, magnetic moment, ferrimagnetic resonance, single crystal

ABSTRACT: The authors investigated the ferrimagnetic resonance in single-crystal garnets  $Y_3Fe_5Ga_2O_{12}$ . The dependence of the resonance frequency on the composition and of the

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ACCESSION NR: APSG1455

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ASSOCIATION: ...

PROPERTY: ...

NR REF 30V: 001

OTHER: 002

WUB 0013: 35, 574

Card 2/2

30545

15 2450

S/564/61/003/000/021/029  
D207/D304

AUTHOR: Titova, A. G.

TITLE: Growing yttrium ferrite garnet monocrystals

SOURCE: Akademiya nauk SSSR. Institut kristallografii. Rost  
kristallov, v. 3, 1961, 434-437

TEXT: The author describes the preparation of yttrium ferrite garnet monocrystals by growing from a molten solution of  $Y_2O_3$ ,  $Fe_2O_3$ ,  $PbO$  and  $B_2O_3$  in a closed platinum crucible placed in a furnace with carborundum heaters. The furnace and crucible temperatures (the latter to  $\pm 0.2$  deg or less) were controlled using a circuit suggested by P. D. Kalinin and A. K. Kuznetsov (Ref. 2: Priory i tekhnika eksperimenta, 1, 136, 1958). A platinum-platinorhodium thermocouple was used to measure temperature. The best results were obtained by using the following mixture:  
7 - 14 mol.%  $B_2O_3$  + 45 - 38 mol.%  $PbO$  + 44 mol.%  $Fe_2O_3$  + 3.5 mol. %  $Y_2O_3$  .

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Growing yttrium...

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The thermal cycle was: heating for 4 hours until  $1314^{\circ}\text{C}$  was reached; keeping at  $1314^{\circ}\text{C}$  for 4 hours; cooling to  $950^{\circ}\text{C}$  at 4 - 5 deg/hour; the total duration of each cycle was 86 hours. In this way crystals of  $\text{Y}_2\text{Fe}_{50}\text{O}_{12}$  and  $\text{PbFe}_{120}\text{O}_{19}$  were obtained. Their dimensions were up to 10 - 12 mm, and they were removed from the solidified melt by boiling in 20%  $\text{HNO}_3$ .  $\text{Y}_2\text{Fe}_{50}\text{O}_{12}$  and  $\text{PbFe}_{120}\text{O}_{19}$  were separated visually using the fact that they had different crystal habits. No garnet crystals were formed at  $\text{B}_2\text{O}_3$  concentrations of 25 mol.% or more. The yttrium ferrite monocrystals obtained in this way had a narrow ferromagnetic resonance line ( $\Delta H = 4 - 6 \text{ Oe}$  at  $\lambda = 3 \text{ cm}$ ) and high resistivity ( $\rho \approx 10^{11} \text{ ohm}\cdot\text{cm}$  at  $20^{\circ}\text{C}$ ). Apart from yttrium ferrite garnet, solid-solution crystals of  $(\text{Y}_{0.25}\text{La}_{0.25})_3\text{Fe}_{50}\text{O}_{12}$  composition were obtained. Using Remelika's technique, crystals of  $\text{Y}_2\text{FeO}_3$  with perovskite structure were also prepared. There are 4 figures and 5 references: 3 Soviet-bloc and

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D207/D304

Growing yttrium...

2 non-Soviet-bloc. The references to the English-language publications read as follows: J. W. Nilsen, E. F. Dearborn, J. Phys. a. Chem. Solids, 5, 3, 202, 1958; J. P. Remeika, J. Amer. Chem. Soc., 78, 17, 4259, 1956.

Card 3/3

Growing single crystals ...

S/061/62/000/013/001/054

B158/B144

and have high resistivity. [Abstracter's note: Complete translation.]

Card 2/2

I 47382-66 ENT(m)/T/EMP(+)/ETI IJP(c) WW/JD/JG

ACC NR: AR602572

SOURCE CODE: UR/0058/66/000/004/A076/A076

AUTHOR: Titova, A. G.; Petrov, T. G.

TITLE: Production of yttrium iron garnet single crystals in the dynamic mode

SOURCE: Ref. zh. Fizika, Abs. 4A636

REF SOURCE: Sb. Simpozium. Protsessy sinteza i rosta kristallov i plenok poluprovodnik. materialov, 1965. Tezisy dokl. Novosibirsk, 1965, 40-41

TOPIC TAGS: yttrium iron garnet, single crystal growing, crystal impurity

ABSTRACT:  $Y_3Fe_5O_{12}$  crystals were grown in the dynamic mode using rotating primers and a reversibly-rotating covered crystallization crucible. Using the low-volatility solven  $BaO-B_2O_3$ , crystals were obtained with primers as follows: 1) with a vertical temperature gradient in the crucible due to transport of matter, and 2) with slow cooling of the melt solution due to a decrease in solubility with lowering temperature. It was found that the average growth rate increases with increasing growth temperature, temperature gradient, and speed of primer rotation. The advantage of the gradient method of growth is demonstrated. Primers were used to obtain crystals with dimensions up to 17 mm, containing no inclusions of the parent solution and having only a small number of cracks. Crystals were grown from a solution of  $Y_2O_3$  and  $Fe_2O_3$  in a  $PbO-PbF_2$  melt in a closed platinum crucible. Reversible rotation of the crucible during the growth time made it possible to stir the solution, and facilitated the supply of material to the growing crystal, thus contributing to the pro-

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47398-5m

ACC NR: AR6025761

duction of crystals which contain no inclusions of the parent solution. [Translation  
of abstract]

SUB CODE: 20

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L 47324-66 EWT(1)/EWT(m)/T/EWP(t)/ETI IJP(c) JE/96

ACC NR: AR6025764

SOURCE CODE: UR/0058/66/000/004/A077/A077

AUTHOR: Titova, A. G.; Petrov, R. A. 2/ 16 43

TITLE: Growing and certain properties of ferromagnetic single crystals of the system  $(\text{Bi}_{3-2x}\text{Ca}_{2x})[\text{Fe}_2] \cdot (\text{Fe}_{3-x}\text{V}_x)\text{O}_{12}$  1

SOURCE: Ref. zh. Fizika, Abs. 4A646

REF SOURCE: Sb. Simpozium. Protsessy sinteza i rosta kristallov i plenok poluprovodnik. materialov, 1965. Tezisy dokl. Novosibirsk, 1965, 41-42

TOPIC TAGS: single crystal growing, ferromagnetic material, crystallization, garnet, crystal orientation

ABSTRACT: Single crystals of ferromagnetic garnets containing no rare-earth elements were obtained by the method of crystallization from a solution in a melt. The solvent and the ratio of the components in the charge were selected. The maximum heating temperatures were obtained as functions of the ratio of the components and their mutual solubility. The solubility of garnet crystals in the investigated solvents was investigated in order to obtain the temperature of the end of crystallization. The phase composition of the melt after the end of the crystallization was determined. A study was made of the upper outlines of the crystals, and the connection between the outlines and the chemical composition of the crystal and the growth conditions was investigated. The microstructure and some physical properties of the synthesized crystal were investigated. [Translation of abstract]

SUB CODE: 20

Card 1/1 m:8



RUBINSHTEYN, B. Ye.; TITOVA, A.G.; LAPOVOK, B.L.

Ferromagnetic resonance in single crystals of yttrium iron-indium  
garnet. Fiz. tver. tela 6 no.12:3538-3544 D '64 (MIRA 18:2)

GEBLER, N.I., assistant

Unusual complications in PAS therapy. Probl.tub. 34 no.6 supplement:  
16-17 N-D '56. (MLRA 10:2)

1. Iz Tomskogo oblastnogo tuberkuleznogo dispansera (glavnyy vrach  
A.I.Titova)

~~(PARAMINOSALICYLIC ACID, injurious effects,~~  
(Rus))

ZAYTSEV, M.Yu.

Needle for local anesthesia in the thorax. Probl.tub. 35 no.5:113  
'57. (MIRA 10:11)

1. Iz khirurgicheskogo otdeleniya (zav. M.Yu.Zaytsev) Tomskogo  
oblastnogo protivotuberkuleznogo dispensera (glavnyy vrach A.I.  
Titova)

(ANESTHETICS--ADMINISTRATION)